



CLINICAL & DEMOGRAPHIC PROFILE OF ACNE AT A TERTIARY CARE CENTER

**Subrata Kumar Das¹, Saptadipa Das², Pulkit Chaturvedi³, Babita Bargujar⁴,
Deepak Saini⁵ and Deepak Kumar Mathur⁶**

¹Department of Dermatology Sikkim Manipal Institute of Medical sciences
Gangtok, Sikkim

²Department of Medicine Sikkim Manipal Institute of Medical Sciences
Gangtok, Sikkim

³Department of Dermatology ESI Hospital, Indore Madhya Pradesh

⁴RNT Medical College, Udaipur Rajasthan

⁵Kotputli Hospital Kotputli, Rajasthan

⁶Department of Dermatology SMS Medical College & Hospital Jaipur. Rajasthan

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ABSTRACT

Objective: The study was done to observe the clinical & demographic profile of acne and different types of acne lesions and their correlation according to age and sex.

Material and Methods: this study was a hospital based observational study conducted on patients who attended OPD of Sawai Man Singh Hospital, Jaipur.

Results: 250 cases were analysed in this study. Among 250 patients, 168 (67.2%) were males and 82 (32.8%) were females.

In the present study maximum number of patients belonged to the age group 16-20 years with 84 (33.6%), followed by 10-15 years with 60 (24%) patients. Out of 250 patients 100 (40%) had mild acne and 30 (12%) patients had severe acne. Out of 250 subjects, 7 subjects were having Acanthosis nigricans, 10 subjects were having seborrheic capitis.

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INTRODUCTION

Acne vulgaris is a inflammatory disorder of the pilosebaceous units characterized by seborrhoea, the formation of open and closed comedones, erythematous papules and pustules and in more severe cases nodules, deep pustules and pseudocysts. It is the most common disorder encounter in day to day practice by dermatologists¹. The term acne is derived from Greek word "acme" which means "prime of life". Although generally considered to be a benign, self limiting condition, but it may sometime cause severe psychological upset or disfiguring scars². It can manifest at any time during life but usually present between ages of 12-24, which estimates 85% of population affected³.

The precise mechanisms of acne are not known but there are four major pathogenic factors⁴:

1. Increased sebum production
2. Hypercornification of pilosebaceous duct
3. Abnormal bacterial function
4. Production of inflammation.

Aim and Objectives

Aim

To study the clinical & demographic profile of acne at a tertiary care hospital.

Objectives

1. To study the different types of lesions in acne patient.
2. To study the correlation between types of skin lesion according to age and sex.

MATERIALS AND METHODS

Study design: Hospital based observational prospective study.

Study site: Department of Dermatology, Venereology and Leprosy, SMS Medical College & Hospital, Jaipur, Rajasthan.

*Corresponding author: **Subrata Kumar Das**

Department of Dermatology Sikkim Manipal Institute of Medical sciences Gangtok, Sikkim

Sampling procedure and size: Patients of acne attending the OPD.

Sample size is calculated at 95% of confidence level assuming grade 1 acne in 60.20 % of cases of acne vulgaris by GAS (global acne scoring system) as per reference study

Profile of acne vulgaris-A hospital based study from south India.

At the absolute allowable error of 10%, total 250 acne patients were final Sample size of the study.

Statistical analysis

Continuous data would be summarized in the form of mean and standard deviation.

Count data will be expressed in the form of proportion.

Inclusion criteria

- All patients of Acne of all stages according to the GAS (Global Acne Scoring) system attending skin OPD.
- Patients of Acne who are willing to participate in the study.

Exclusion criteria

Cases not willing to participate in the study.

Global Acne Grading System

Severity can be classified in four categories according to Global Acne Grading System (GAGS):

1. Mild
2. Moderate
3. Severe
4. Very severe

Factors according to location of acne

- Factor 1 - For nose and chin
- Factor 2 - For forehead , right cheek and left cheek
- Factor 3 - For chest and upper back

Each type of lesion is given a value depending on severity: no lesions = 0, comedones = 1, papules = 2, pustules = 3 and nodules = 4.

- The score for each area (Local score) is calculated using the formula:
- Local score = Factor × Grade (0-4).
- The global score is the sum of local scores, and acne severity is graded using the global score.
- 1-18, mild;
- 19-30, moderate;
- 31-38, severe; and
- >39, very severe

RESULTS

250 cases were analysed in this study. Among 250 patients, 168 (67.2%) were males and 82 (32.8%) were females. (Table 1)

Table 1 Sex distribution of study subjects

	Male	Female	Total
No	168	82	250
%	67.2	32.8	100

In the present study maximum number of patients belonged to the age group 16-20 years with 84 (33.6%), followed by 10-15 years with 60 (24%) patients. (Table 2)

Table 2 Distribution of subjects according to their age

Age distribution	Male		Female		Total
	N	%	N	%	
10-15 Year	36	14.4	24	9.6	60
16-20 Year	64	25.6	20	8	84
21-25 Year	20	8	18	7.2	38
26-30 Year	20	8	10	4	30
31-35 Year	16	6.4	6	2.4	22
36-40 Year	12	4.8	4	1.6	16
Grand Total	168		82		250

Most of the study subjects (124) were college student, and no of school going subjects were 66. (Table 3) 100 (40%) patients had duration of lesions between 3-4 year, 68 (35.9%) patients had Duration between 1-2 years. (Table 4)

Table 3 Occupational status of study subjects

Occupation	Male		Female		Total
	N	%	N	%	
School Student	36	14	30	12	66
College Student	89	36	35	14	124
Employee	29	12	7	3	36
Others	14	6	10	4	24
Grand Total	168		82		250

Table 4 Distribution of subjects according to duration of disease

Duration	Male		Female		Total
	N	%	N	%	
< 1 Year	15	6	12	5	27
1-2 Year	48	19	20	8	68
3-4 Year	65	26	35	14	100
>4 Year	40	16	15	6	55
Grand Total	168		82		250

82 (32.8%) patients were having seasonal exacerbation, while 50 (20%) patients had flares of acne with periods of stress. (Table 5) 85 (34%) patients had comedones which was most predominant lesions, nodules & cyst were present in 24 (10%) patients. (Table 6) Among 250 patients studied 50 (20%) had scars, of which 22 (8.8%) patients had ice Pick scars. (Table 7)

145 (58%) patients had lesions only on the face, 25 (10%) patients had lesions on face, back and chest. (Table 8)

Out of 250 patients 100 (40%) had mild acne and 30 (12%) patients had severe acne. (Table 9)

Out of 250 subjects, 7 subjects were having Acanthosis nigricans, 10 subjects were having seborrheic capitis. (table 10)

Table 5 Distribution of subjects according to aggravating factors

Aggravating factors	Male		Female		Total
	N	%	N	%	
Diet	43	17.2	14	5.6	57
Stress	38	15.2	12	4.8	50
Seasonal exacerbation	67	26.8	15	6	82
Steroid application	15	6	20	8	35
Cosmetic application	5	2	12	4.8	17
Pre-menstrual flare	-	-	9	3.6	9
Grand Total					250

Table 6 Distribution of subjects according to predominant lesions

Predominant lesions	Male		Female		Total
	N	%	N	%	
Comedones	60	24	25	10	85
Papules	36	14	20	8	56
Pustules	20	8	15	6	35
Nodules & Cyst	15	6	9	4	24
Scars	37	15	13	5	50
Grand Total					250

Table 7 Distribution of subjects according to acne scar lesions

Scars	Male	Female	Total
Ice pick	17	5	22
Rolling Scar	8	4	12
Boxcar	8	2	10
Hypertrophic scar	4	2	6
Grand Total			50

Table 8 Distribution of subjects according to predominant site lesions

Predominant site of lesions	Male		Female		Total
	N	%	N	%	
Face	100	40	45	18	145
Back	15	6	7	2.8	22
Face & Back	20	8	8	3.2	28
Face, Back, Chest	15	6	10	4	25
Face, Back, Chest, Arms	18	7.2	12	4.8	30
Grand Total					250

Table 9 Distribution of subjects according to severity

Severity of Acne	Male		Female		Total
	N	%	N	%	
Mild	60	24	40	16	100
Moderate	50	20	25	10	75
Severe	30	12	15	6	45
Very severe	18	7.2	12	4.8	30
Grand Total					250

Table 10 Associated conditions in Acne subjects

Associated conditions	No of subjects	
	Male	Female
Acanthosis Nigricans	4	3
Hirsutism	-	5
Menstrual irregularity	-	7
Seborrheic capitis	7	3
Androgenetic alopecia	8	-
Total		37

DISCUSSION

Acne vulgaris is a self limiting chronic inflammatory condition of the pilosebaceous follicles and is characterized by comedones, papules, pustules, nodules, and scars. It can manifest at any time during life but usually present between ages of 12-24 years which estimates 85% of population affected⁴. Similarly in index study the most common age of presentation of the acne subjects ranged from 16-20 years mostly, which is also same as reported by Kaymak *et al.*⁵. Al-Ameer and Al-Akloby,⁶ in their study of 225 patients with acne vulgaris observed that the age at presentation was 19.2 ± 3.0 years for males and 18.4 ± 4.2 years for females.

We observed male preponderance with male to female ratio 2.04: 1 that is quite different from Thappa *et al.*⁷ which had a male to female ratio of 1.25:1. However Reena Kumari Sharma, *et al.*⁸ found that there is almost similar ratio in male and female. Ali M. Al-Ameer, *et al.*⁹ founded the male: female ratio was 1.56: 1. But Mahadevi Patil *et al.*¹⁰ founded that there is higher female preponderance which is 1: 1.35. The male

preponderance in this study may be due to negative social aspects for females or high male to female ratio.

Majority of the subjects were from rural area as most of the population in India resides in rural area. In this study there is no statistically difference in residence, education and occupation in male and female. Our study observed that most of the study subjects were college student (50%) that is Out of 250 subjects 124 subjects were college student and among them 89 subjects that is 36% were male and 35 subjects that is 14% were female. Among those subjects 66 subjects (26.4%) were school students out of them 36 subjects (14%) were male and 30 subjects were female. Similarly Thappa *et al.*⁷ reported that most patients were in the age group of 16-20 years (59.8%) and the majority being either college (33.3%) or school (33%) students.

Another interesting observation made in our study was that male patients had more severe acne. As recorded in other studies, acne develops earlier in females than in males¹¹. The earlier onset of clinical acne in girls than boys is presumably related to their earlier puberty. However, in our study, there was no significant difference regarding the age of onset of acne vulgaris among both sexes.

In our study we found that most of the acne subjects were having disease duration of 3-4 years. A total of 100 acne subjects (40%) were having disease duration of 3-4 years. And 27 acne Subjects (11%) were having disease duration <1 year. 55 acne subjects (22%) were disease duration > 4 years.

Acne occurs in sites, which are rich in pilosebaceous units. It was noticed in our study That face was the theater of action in almost all the patients with acne (85%). Back Alone was involved in 8.8 %. Face, back and chest was involved in 10 %. And all four Sites that is face, Back, chest and arms were involved in 12 % of subjects. These observations are in accordance with data from earlier literature like Thappa *et al.*⁷ and Ali M Al-Ameer *et al.*⁹ Acne is a polymorphic disease. The primary and the pathognomonic lesion of acne is a comedone¹⁰. Other type of lesion include papule, pustule, nodule and cyst.

The most common type of lesion in our group of acne subjects were comedones, which is similar to the findings of previous study like Thappa *et al.*⁷ and Ali M. Al-Ameer, *et al.*⁹ In our study we found that there were 34 % of acne subjects were having comedones and 22% acne subjects were having papules and 14 % had pustules and 10 % had nodules and cyst.

Marco A Rocha *et al.*¹² noticed that 40.2 % of their patients with acne had post acne scarring. Lower incidence of post acne scarring in acne vulgaris patients has been recorded in other studies . Kilkeny *et al.*¹³ reported that 25 % of their patients with post-acne scarring. Post-acne scarring was noticed in 20 % of our acne patients. The ice-pick scars were the most common type of post-acne scars, noticed in 44 % of the patients with post-acne scarring.

In our study we found that most common exacerbating factor for acne was seasonal exacerbation. Almost 32.8 % of acne subjects had history of seasonal exacerbation, which is almost similar to findings of study by M. Al-Ameer *et al.*⁹. 22.8 % of acne subjects had history of exacerbation of acne after consumption of high calorie diet. 20 % of study subjects had history of exacerbation of acne when they were in stress. 14 %

had history of exacerbation of acne after steroid application. Premenstrual flare up was seen in 3.6 % of acne subjects.

In our study we found that 7 acne subjects were having acanthosis nigricans out of which 4 were male and 3 were female. 7 female subjects were having menstrual irregularity and 5 female subjects were having hirsutism. 8 male subjects were having androgenetic alopecia.

Both acne vulgaris and seborrheic dermatitis have predilection for the seborrheic areas of the body such as face, ears, scalp and upper part of the trunk. Moreover, it is well known that seborrhea plays a central role in the pathogenesis of both the diseases¹⁴. Seborrheic dermatitis was the most common disease associated with acne in our study. A total of 10 subjects were having seborrheic capitis in our study. In our study we observed that majority of acne subjects (40%) were having mild or Grade I acne. Thappa *et al*⁷ had 60.2 % of subjects with grade I acne. Whereas (30%) were acne subjects were having moderate or grade II acne. A total of (18%) acne subjects were having severe or grade III acne and only (12%) of acne ++ Subjects were having very severe or grade IV acne.

SUMMARY & CONCLUSION

Present study was undertaken to determine the clinical and demographic profile of acne In a tertiary care hospital in Northern India. A total of 250 acne subjects who fulfilled Eligibility criteria were enrolled for the study. A detailed clinical and demographic data Along with clinical characteristics were observed and types of lesion and sites of lesions were noted and graded into mild, moderate, severe and very severe according to global acne grading system (GAGS).

Face was involved in almost all cases and face involvement alone was observed in 145 (58%) of cases. Back alone was involved in 8.8 % of cases. Most common type of Lesion were comedones. There were 100 patients (40%) with grade I acne, 75 (30%) with grade II acne, 45 (18%) with grade III acne and 30 (12%) with grade IV acne.

Post acne scarring were observed in 20 % of our acne patients. The ice-pick scars were the most common type of post-acne scars, noticed in 44 % of the patients with post-acne scarring.

In our study we found that most common exacerbating factor for acne was seasonal exacerbation. Almost 32.8 % of acne subjects had history of seasonal exacerbation. In our study we found that 7 acne subjects were having acanthosis nigricans out of which 4 were male and 3 were female. 7 female subjects were having menstrual irregularity and 5 female subjects were having hirsutism. 8 male subjects were having androgenetic alopecia. Seborrheic dermatitis was the most common disease associated with acne in our study. A total of 10 subjects were having seborrheic capitis in our study.

This study brings out the clinical profile of acne vulgaris in a tertiary care hospital in South India. As this study is hospital based and carried out at a tertiary care center, future studies with more number of patients and even population-based studies can truly find the prevalence of acne vulgaris in our community.

Declaration of patients consent

The authors certify that they have obtained written informed consent from all the patients in the form patient (s) / attendants has / have given his / her / their consent for his / her / their images and other clinical information to be reported in the journal. The patients understood that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity can not be guaranteed.

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Conflicts of interest – There are no conflicts of interest .

References

1. Sams WM Jr, Lynch PJ, eds. Principles and Practice of Dermatology. New York: Churchill Livingstone; 1990.
2. Leung AK, Robson WL. Acne. *J R Soc Health*. 1991;111.
3. Eichenfield LF, Leyden JJ. Acne: Current concepts of pathogenesis and approach to rational treatment. *Paediatrician*. 1991;18:218-23.
4. Cunliffe WJ, Marks R, eds. Acne. London: Martin Dunitz; 1989;68:160-74.
5. Yesim Kaymak¹, Ender Taner, Yasemen Taner; Comparison of depression, anxiety and life quality in acne vulgaris patients who were treated with either isotretinoin or topical agents. *Int J Dermatol*. 2009 Jan;48(1):41-6. doi: 10.1111/j.1365-4632.2009
6. Al- Ameer AM, Al-Akloby OM. Clinical pattern of acne vulgaris and its associated conditions in the eastern province of kingdom of Saudi Arabia: A hospital-based clinical study. *J Fam Community Med* 2002;9:37-40
7. Adityan B, Thappa DM. profile of acne vulgaris – A hospital based study from South India. *Indian J Dermatol Venereol Leprol* 2009; 75: 272-278.
8. Sharma RK, Dogra S, Singh A, Kanwar AJ. Epidemiological patterns of acne vulgaris among adolescents in North India: A cross-sectional study and brief review of literature. *Indian J Paediatr Dermatol* 2017;18:196-201
9. Ali M. Al - Ameer, MD and Omar M. Al - Akloby, MD Clinical pattern of acne vulgaris and its associated conditions in the eastern province of kingdom of Saudi Arabia: A hospital -based clinical study. *J Family Community Med*. 2002 May-Aug; 9(2): 37-4
10. Mahadevi Patil and Jyoti Bendigeri/ Analytical study of treatment outcome of various topical modalities in Acne Vulgaris *International Journal of Biomedical and Advance Research* 2015; 6(07): 546-548.
11. Warshaw TG. Incidence of acne vulgaris *New York J. Med.*, 1958;58:2797-8.
12. Marco A Rocha and Ediléia Bagatin Adult-onset acne: prevalence, impact, and management challenges; *Clin Cosmet Investig Dermatol*. 2018; 11: 59-69
13. M Kilkenny¹, V Stathakis, M E Hibbert, G Patton, J Caust, G Bowes; Acne in Victorian adolescents: associations with age, gender, puberty and psychiatric symptoms: *J Paediatr Child Health*. 1997 Oct; 33(5): 430-3. doi: 10.1111/j.1440-1754
14. J L Burton, S Shuster; The relationship between seborrhoea and acne vulgaris: *Br J Dermatol* 1971 Aug; 85(2):197-8 doi: 10.1111/j.1365-2133.
